

CLAIM AMENDMENTS

Please amend the claims as follows:

1. (Currently Amended) A storage system comprising:

5 a plurality of front-end control elements ~~substantially~~ devoid of circuits and functions that control a plurality of I/O devices and configured for controlling information exchange using RAID storage management with one or more attached host computer systems;

10 a plurality of back-end control elements ~~substantially~~ devoid of circuits and functions that interface directly with the attached host computer systems, communicatively coupled to a plurality of I/O devices and configured for controlling information exchange with the I/O devices, wherein the front-end control elements differ in number from the back-end control elements; and

DI an interconnect element coupled to said front-end control elements and coupled to said back-end control elements to enable exchange of information therebetween, wherein the storage system is adapted to implement additional front-end control elements, back-end control elements and interconnect elements independent of all other such elements wherein the interconnect element is configured for conveying the requests from the front-end control elements to the back-end control elements to perform the host requested I/O operation, and wherein said interconnect element is an SAN architecture fabric that conveys the requests from the front-end control elements to the back-end control elements by exchange of messages between the front-end and back-end control elements according to address indicia within the messages and associated with the front-end and back-end control elements.

2. (Previously Presented) The system of claim 1 further comprising:

25 a plurality of disk drives coupled as I/O devices to said back-end control elements.

3. (Previously Presented) The system of claim 2 wherein said plurality of disk drives comprises:

a first subset of said plurality of disk drives; and

a second subset of said plurality of disk drives, and

30 wherein said plurality of back-end control elements includes:

a first pair of back-end controllers coupled to said first subset; and

a second pair of back-end controllers coupled to said second subset.

4. (Original) The system of claim 3 further comprising:

a first pair of redundant links coupling said first pair of back-end controllers to said first

5 subset; and

a second pair of redundant links coupling said second pair of back-end controllers to said second subset.

5. (Previously Presented) The system of claim 1 wherein said interconnect element

10 comprises a pair of interconnect elements and wherein each of said plurality of front-end control elements is coupled to each of said pair of interconnect elements.

6. (Currently Amended) The system of claim 5 further comprising:

a first set of disk drives; and

15 a second set of disk drives, ~~and wherein~~ said plurality of back-end control elements including:

a first pair of back-end controllers coupled to said first set wherein each of said first pair of back-end controllers is coupled to a corresponding one of said pair of interconnect elements; and

20 a second pair of back-end controllers coupled to said second set wherein each of said second pair of back-end controllers is coupled to a corresponding one of said pair of interconnect elements.

7. (Original) The system of claim 1 wherein said interconnect element comprises a PCI bus.

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8. (Original) The system of claim 1 wherein said interconnect element comprises:

a Fibre Channel communication medium; and

a Fibre Channel SAN switch coupled to said Fibre Channel communication medium.

30 9. (Original) The system of claim 1 wherein said interconnect element comprises an InfiniBand compliant communication medium.

10. (Original) The system of claim 1 wherein said interconnect element comprises a local area network communication medium.

5 11. (Cancelled)

12. (Original) The system of claim 1 wherein said front-end control element is operable to perform mapping of logical storage addresses to physical storage addresses for further operations by said back-end control element.

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13. (Original) The system of claim 1 wherein said back-end control further comprises:
a RAID parity assist element for RAID parity generation and checking.

14. (Currently Amended) A front-end control element for a storage subsystem comprising:

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a host system interface;

a processor coupled to said host system interface to process host system generated I/O requests received through said host system interface; and

a an SAN interface coupled to said processor for coupling said front-end control element to a plurality of back-end control elements, wherein said front-end control element is adapted to be added to the storage subsystem independent of said back-end control elements,

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wherein front-end control elements differ in number from said back-end control elements, and

wherein said SAN interface couples the front-end control element to an SAN fabric that conveys the I/O requests from the front-end control elements to the back-end control elements by exchange of messages between the front-end and back-end control elements according to address indicia within the messages and associated with the front-end and back-end control elements, and

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wherein the front-end control element is ~~substantially~~ devoid of circuits and functions that control a plurality of I/O devices.

15. (Original) The front-end control element of claim 14 wherein said SAN interface comprises a PCI bus interface.

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16. (Original) The front-end control element of claim 14 wherein said SAN interface comprises a Fibre Channel communication media interface.

17. (Original) The front-end control element of claim 14 wherein said SAN interface comprises an InfiniBand compliant communication medium.

18. (Original) The front-end control element 14 wherein said SAN interface comprises a local area network communication medium.

19. (Currently Amended) A back-end control element for a storage subsystem comprising:
a disk drive interface for coupling said back-end control element to a plurality of disk drives; and
an SAN interface coupled to said disk drive interface for coupling said back-end control element to a plurality of front-end control elements, wherein said back-end control element is adapted to be added to the storage subsystem independent of said front-end control elements, wherein back-end control elements differ in number from said front-end control elements, and
wherein said SAN interface couples the back-end control element to an SAN fabric that conveys the I/O requests from the front-end control elements to the back-end control element by exchange of messages between the front-end and back-end control elements according to address indicia within the messages and associated with the front-end and back-end control elements, and wherein the back-end control element is ~~substantially~~ devoid of circuits and functions that interface directly with the attached host computer systems ~~and configured~~.

20. (Original) The back-end control element of claim 19 wherein said SAN interface comprises a PCI bus interface.

21. (Original) The back-end control element of claim 19 wherein said SAN interface comprises a Fibre Channel communication media interface.

22. (Original) The back-end control element of claim 19 wherein said SAN interface comprises an InfiniBand compliant communication medium.

23. (Original) The back-end control element of claim 19 wherein said SAN interface comprises a local area network communication medium.
